Successful Relocation of a Seattle Purple Martin Breeding Colony

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Introduction

Purple martins (*Progne subis*) are the largest birds of the eight North American species comprising the swallow family, Hirundinidae. This migratory species breeds across much of eastern North America, portions of the upper Pacific coast to Vancouver Island, and portions of Mexico, Arizona, New Mexico, Colorado, and Utah. It over winters in South America (Sprunt, 1942). Western populations have declined significantly over the past half century, and the species is given a special conservation status in California, Oregon, Washington, British Columbia, and Colorado. Washington lists the Purple Martin as a Candidate Species; in British Columbia the species is red-listed. Oddly, the majority of the species population nests in colonial birdhouses provided by people. Purple martins in the west have not made as dramatic a behavioral shift as their eastern counterparts, and in some rare cases still nest in natural cavities in trees or in the SW, even cacti. Starlings, European house sparrows, and lack of tree snags are considered to be major factors in the decline. (Brown, 1997) Recovery programs in each state tend to be loosely coordinated at best, and depend largely on nest box programs by citizen volunteers. Seattle brought its known number of purple martin breeding pairs from zero to thirty-two over a span of nine summers (1996-2004). A substantial number of the known nests in WA, OR (Horvath 1999), and BC are along marine shorelines, where pilings are often used for hanging nesting gourds or boxes. Purple martins tend to arrive in Seattle primarily in May and June, with the very first arrivals in April; departure is usually in early September.

In 1947, the purple martin was considered a fairly common summer resident in Seattle, and the birds were abundant in roosts at Green Lake and the Montlake neighborhood; numbers would be in the thousands (Larrison, 1947, 1968, 1981). Starlings were first seen in the city around 1950, and were considered a "rare permanent resident" (Jewett et al, 1953). By the 1970s and 80s purple martins had declined substantially, and were regarded as a vanishing species nesting in widely scattered colonies (Lewis & Sharpe, 1987). In 1980 there were just two colonies known in King County, and the purple martin was considered "on the brink of extinction." (Hunn 1982) Seattle had just a single known nesting pair in 1988 (P. Thompson, WDFW 2004). In 1996 there had been no known purple martin nests in Seattle for 8 years. Then a volunteer nest box program showed positive results with purple martins nesting successfully in Ballard; by 2004 Ballard had 11 nesting pairs. Other regional Purple Martin nest box programs have developed, particularly around Victoria B.C. (Copley et al, 1999), Portland, Olympia, Vashon Island, Kitsap County and Snohomish County.

Background

Nest cavities mounted on pilings along marine shorelines have been shown to be successful on a number of purple martin housing projects, from Oregon to British Columbia. (Morse et al, 2003). The success in Ballard in 1996 was followed by small colonies developing in other parts of Seattle: the Duwamish River estuary and Elliott Bay. Housing was installed as part of a citizen volunteer project, funded by the author, and loosely tied with WDFW and the King County Department of Natural Resources. In addition to housing installation and monitoring, active effort to dissuade house sparrows and starlings is essential to building and maintaining purple martin colonies.

One site on Elliott Bay, Port of Seattle Terminal 5, has had a park in development along its shoreline, Jack Block Park. Terminal 5 is on the south part of Elliott Bay, west of the Duwamish River mouth and Harbor Island. Five wooden purple martin nest boxes were installed in early 1999 on several of the numerous pilings off shore; boxes would be attached to the pilings by boat at high tide. Initially some of the boxes were only occupied by house sparrows, a non-native species that competes aggressively for nesting cavities. Those first few nesting seasons, no martins were seen at Jack Block Park; monitoring was a challenge due to the distances and angles from the viewing areas. Then in 2000 there was an anecdotal

observation (by boat) of a purple martin by Pat Cagney of the US Army Corp of Engineers. Subsequent monitoring of the area found nests at Jack Block Park and a mile up the Duwamish River in nest boxes at Kellogg Island and Terminal 105.

Confirmation of purple martin nesting at Jack Block Park came in 2001, with two pairs nesting among the natural gourds and cedar nest boxes. The following year, 2002 was promising when six pairs successfully nested. A nest was considered successful if at least one chick fledged.

Jack Block Park is situated on the north shore of Port of Seattle Terminal 5; the Port acquired Terminal 5 in 1994 from Pacific Sound Resources (a.k.a. Wyckoff), after the site was added to the EPA National Priorities List. The 25-acre site had been used for industrial wood treatment for about 80 years. The offshore area of contamination covers approximately 100 acres. The soil, ground water, and marine sediment were regarded as highly contaminated, and a provision of the acquisition required the Port to clean up the site under the guidance of the EPA. The 35 million dollar Pacific Sound Resources Superfund clean up was to involve removal of thousands of cubic yards of contaminated soil and sludge, capping of the upland and near shore, installation of a subsurface slurry wall, and removal of about 700 treated wood pilings. The 700 pilings to be removed included the 18 or so pilings that supported the seven successful martin nests in 2003. Four of the eleven cavities were vacant.

Problem Solving

Alternative housing was needed in light of the superfund clean up, but there was little precedent for replacement of an entire martin colony. In Esquimalt Harbor in British Columbia there was a moored decommissioned ship (the *Chaudiere)* that had inadvertently housed purple martins in its port holes; the ship was moved across the harbor in 1987, and the six pairs of martins moved with the ship (Fraser et al, 1997). In this Seattle case, martins that would arrive at Jack Block Park in 2004 would find hundreds fewer pilings, an altered beach, and an unfamiliar set of gourds.

The nests had been as close as 200 feet to shore, but had been directly over the water (see fig. 3). George Blomberg of the Port of Seattle suggested that concrete blocks could be set on the shore to serve as a base for 10-foot wooden posts from which natural gourds would hang. Being on shore the nests would be easier to access for monitoring, and would likely not be susceptible to vandalism. The Port of Seattle had no legal obligation under the Migratory Bird Protection Act to protect the housing when it was not in active use by the birds. The pilings were removed well after the martins had left on migration. Nevertheless, the Port kindly provided three concrete blocks and posts and had them installed before spring (see fig. 4); another post was installed on a large piece of driftwood on shore. Access was granted to the author for installing the gourds and servicing the nests. Other gourds were installed atop copper posts on nearby piers, for a total of 14 gourds; a distant pier held four wooden boxes that had never been seen in use. Some of the gourds were new, and some had been used before. Old gourds with nests were placed in a freezer over several days, in order to reduce insect nest parasites. Contents were left intact.

Our hope was that the change in housing would not be a set back for purple martins at Jack Block Park. If the birds did not nest at the park, we would hope that they would nest at an alternative site; however, the birds are not banded, and distribution of individuals would be unknown. Other purple martin colonies are located at several sites within a few miles, in Seattle and to the west at Vashon and Bainbridge Island.

Scoping

Monitoring was done visually starting in late April, with no handling of the nests or birds. A Leica 77mm 20-60x APO spotting scope often provided excellent views, and digital photos were taken with a Nikon Coolpix 995 held by hand to the scope (see figs. 1, 2, 5, 6). The time of day for monitoring varied, but visits were usually made at dawn or dusk several times per week, especially early in the nesting season when activity is less likely at mid day. On occasion leg bands have been seen on individuals that were banded elsewhere. Gourds had been acquired from growers in the SE US, purchased from the Purple

Martin Conservation Association or from sellers on eBay; cost was around $6-10 per gourd. The gourds are drilled with entry holes of various dimensions, either a 2" diameter round hole, or a crescent or oval with a maximum height of 1 1/4". A sealant was applied for weather protection. No starlings or house sparrows have been observed competing for the gourds at Jack Block Park or other Seattle purple martin colonies; however, competition for wooden nest boxes may be rampant.

In June 2004, purple martins were seen tearing pieces of madrona leaves and carrying them inside the gourds (fig. 5). Nestlings could be seen by July in one of the nearest gourds (see fig. 6), and fledging took place starting in early August. The purple martins may roost in the area for weeks, and fledglings can be seen high in flight catching dragonflies released by the adults. Observations continued into September, until purple martins presumably left the area. Judging from the activity it was concluded that 11 pairs had successfully fledged young. In the previous year there were 7 pairs of purple martins, so it appears that despite the removal of the pilings between nesting seasons, good progress was made in building purple martin breeding populations to Seattle's Jack Block Park. The total number of breeding pairs of purple martins in the city was estimated at 32.

Discussion

The outcome of this experiment was encouraging given that so many nests for purple martins are currently mounted on creosote treated pilings. The percentage of nests on such pilings may be well over 50%. Creosote removal has become a high priority for the environmental agencies, and alternative structures for purple martin housing will eventually need to be found. The species is in a unique dilemma, but this was an encouraging demonstration of their adaptable behavior.

The number of purple martins observed nesting in natural cavities in Washington is very low, perhaps less than ten in recent years. Long ago, when use of natural cavities in snags was typical, purple martins must have had to adapt to changing landscapes due to fire and natural decay.

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Figure 1: purple martin adult male and female

Figure 2: scoping the colony

Figure 3, Jack Block Park 2003; gourds on pilings in the center and to the right.

Figure 4 Jack Block Park 2004; gourds in foreground and to the left.

Figure 5: female purple martin, gathering nest material 2004

Figure 6: purple martin nestlings, 2004

Brown, C.R. 1997. Purple Martin (*Progne subis*). *In* The Birds of North America, No. 287)A. Poole and F. Gill, eds.) The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington D.C.

Copley, D., D. Fraser, and J.C. Finlay. 1999. Purple Martins, *Progne subis*: A British Columbian Success Story. Canadian Field Naturalist 113(2):226-229.

Fraser, D. F., C.Siddle, D. Copley and E. Walters. 1997. Status of the Purple Martin in British Columbia. British Columbia Ministry of Environment, Lands and Parks. Wildlife Working Report No. WR-89.

Horvath, E. 1999. Distribution, Abundance, and Nest Site Characteristics of Purple Martins in Oregon. Report prepared for Oregon Department of Fish and Wildlife. 143pp.

Hunn, E.S. 1982. Birding in Seattle and King County. Seattle Audubon Society Trailside Series. 160 pp.
Jewett, S.G., W.P. Taylor, W.T. Shaw, and J.W. Aldrich. 1953. Birds of Washington State. Univ. Washington Press. 766 pp.

Larrison, E. J. 1947. Field guide to the birds of King County, Washington With illus. by Elizabeth L. Curtis. Seattle Audubon Society.

Larrison, E., and K.G. Sonnenberg. 1968. Washington Birds, Their Locations and Identification. Seattle Audubon Society: Seattle, Wa. 258 pp.

Larrison, E. J. 1981. Birds of the Pacific Northwest, Washington, Oregon, Idaho and British Columbia. The Univ. Idaho, Moscow, ID. 337 pp.

Lewis, M.G., and F.A. Sharpe. 1987. Birding in the San Juan Islands. The Mountaineers, Seattle, WA. 219 pp.

Morse, B., T. Aversa, H. Opperman. 2003. Birds of the Puget Sound Region. R.W. Morse Co. 390 pp.

Sprunt, A., Jr. 1942. Purple Martin. *In* A.C. Bent. 1942. Life Histories of North American Flycatchers, Larks, Swallows, and their allies. U.S. Natl. Mus. Bull. No. 179. 555 pp.

Thompson, P. WDFW 2004. Personal communication.